



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,933	09/09/2003	Christophe Pierrat	NTI-007-1D	3106
29477	7590	06/05/2006	EXAMINER	
BEVER HOFFMAN & HARMS, LLP 1432 CONCANNON BLVD BLDG G LIVERMORE, CA 94550-6006			LUU, CUONG V	
			ART UNIT	PAPER NUMBER
			2128	

DATE MAILED: 06/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/658,933	Applicant(s) PIERRAT ET AL.	
	Examiner Cuong V. Luu	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 5 and 8 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 6 and 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/9/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-8 are pending. Claims 1-8 have been examined. Claims 2-3 and 6-7 have been objected. Claims 1, 4-5, and 8 have been rejected.

Information Disclosure Statement

NPL documents are not considered with this office action; however, it has been noted that parent application may have similar NPL cited. Applicants are advised to point out where any new NPL is cited.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8 are rejected under 112, 2nd paragraph.

1. The term "substantially similar" in claims 1, 3-5, 7-8 is a relative term, which renders the claim indefinite. The term "substantially similar" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.
2. Claims 2 and 6 inherit the defective of claims 1 and 5, respectively.

3. The term "certain" in claims 2 and 6 is a relative term, which renders the claim indefinite.

The term "certain" is not defined by the claim. It is unclear which segment of the first segments a second segment is corresponding to.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. The claimed invention for claims 1-8 is directed to non-statutory subject matter, the computer software.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 4-5, and 8 are rejected under 35 U.S.C. 102(a) as being anticipated by Kachwala et al (High Transmission Attenuated PSM- Benefit and Limitations through a Validation Study of 33%, 20% and 6% Transmission Masks, Optical Microlithography XIII, Vol. 4000, 27 February – 3 March, 2000, Santa Clara, CA, USA).

1. As per claim 1, Kachwala et al teach computer software for simulating a tri-tone attenuated phase-shifting mask including a plurality of structures, a subset of the structures including a

transparent region, an opaque region, and an attenuated region, wherein the opaque region and the attenuated region form a rim (the abstract), the software comprising:

means for analyzing optical proximity correction for the subset of the structures (p. 3, paragraph 5, lines 3-4 of this paragraph); and

means for providing a substantially similar rim width in the subset of the structures (p. 5, paragraph 1).

2. As per claim 5, Kachwala et al teach computer software to convert an integrated circuit layout into an attenuated phase-shifting mask layout for fabricating the integrated circuit, the software comprising:

means for identifying a subset of structures in the integrated circuit layout (p. 5, paragraph 1. The recitation of having different tolerances for difference regions suggests means for identifying a subset of structures in the integrated circuit layout);

means for converting the subset of structures into the mask layout, wherein each converted structure includes a transparent region, an opaque region, and an attenuated region, wherein the opaque region and the attenuated region form a rim (the abstract's recitation of (p. 2, section 2, lines 1-2 of paragraph 1. Tri-stone masks read on converting the subset of structures into the mask layout, wherein each converted structure includes a transparent region, an opaque region, and an attenuated region, wherein the opaque region and the attenuated region form a rim);

means for analyzing optical proximity correction for a plurality of converted structures (p. 3, paragraph 5, lines 3-4 of this paragraph); and

means for providing a substantially similar rim width for the plurality of converted structures (p. 5, paragraph 1).

Art Unit: 2128

3. As per claim 4, Kachwala et al teach the means for providing includes means for downsizing the attenuated region to generate the substantially similar rim width (p. 5, paragraph 1. Kachwala et al's recitation of reducing the tolerance for dense region suggests downsizing the attenuated region to generate the substantially similar rim width).
4. As per claim 8, this limitation has already been discussed in claim 4. It is, therefore, rejected for the same reasons.

Allowable Subject Matter

Claims 2-3 and 6-7 are objected to as being dependent upon a rejected base claims 1 and 5, respectively, but would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, and 35 U.S.C. 101 set forth in this Office action and in independent form including all of the limitations of the base claim.

The following is a statement of reasons for the indication of allowable subject matter:

5. As per claims 2 and 6, the prior art teaches means for dividing a first edge of the attenuated region into a plurality of first segments but does not teach means for dividing a second edge of the opaque region into a plurality of second segments, wherein each second segment corresponds to a certain first segment and means for determining whether a second segment moves with its corresponding first segment during optical proximity correction as recited in the claim invention.

Art Unit: 2128

6. As per claims 3 and 7, the prior art does not teach the means for providing includes means for downsizing the attenuated region and then upsizing the attenuated region to generate the substantially similar rim width.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cuong V. Luu whose telephone number is 571-272-8572. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah, can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. An inquiry of a general nature or relating to the status of this application should be directed to the TC2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CVL


KAMINI SHAH
SUPERVISORY PATENT EXAMINER